

Figure 1, HCV J4L6 genome wild-type cDNA sequence, reference accession number AF054247,

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Figure 2, codon optimised HCV Core polynucleotide

ATGAGCACCAACCCCAAGCCCCAGCGCAAGACCAAGCGGAACACCAACCGGAGACCCCAGGA
CGTCAAGTTCCCAGGAGGAGGCCAGATCGTGGGCGGCGTGTACCTGCTGCCCCGCCGGGGGC
CCCGGCTGGGCGTGC GCGCCACCCGCAAGACCAGCGAGCGCTCCCAGCCAAGAGGCAGACGC
CAGCCGATCCCCGAAGGCCCGCCGCCCTGAGGGCCGGGCTTGGGCCCAGCCAGGCTACCCCTG
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CCGGGAACCTGCCCGGCTGCAGCTTCTCCATCTTCCTGCTGGCGCTGCTGAGCTGCCTCACC
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Figure 3, Codon optimised HCV NS3 polynucleotide

ATGGCCCCCATCACCGCCTACAGCCAGCAGACCCGGGGACTGCTCGGCTGCATCATCACCTC
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Figure 4, codon optimised HCV NS4B polynucleotide

ATGTTTTGGGCCAAGCATATGTGGAAC TTCATCAGCGGCATCCAGTACCTCGCCGGGCTGAG
CACCTCCCGGGCAACCCCGCGATCGCAAGCCTGATGGCGTTCACAGCGAGCATCACCTCCC
CCCTGACTACCCAGAACACACTGCTGTTCAACATCCTGGGGGGCTGGGTGCGCCGCTCAGCTG
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ACCCAGATCCTGAGCTCCCTGACCATCACCCAGCTGCTCAAGAGGCTGCACCAGTGGATCAA
CGAGGACTGCTCCACCCCTTGCTGA

Figure 5, codon optimised HCV NS5B polynucleotide

ATGTCCATGTCCTACACCTGGACCGGCGCCCTGATCACCCCTGCGCCGCCGAGGAGAGCAA
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CCCCCATCCCTGCCGCCAGTCAGCTGGATCTCAGTGGGTGGTTTCGTGGCCGGCTATTCTGGC
GGCGACATCTACCACTCCCTCAGCAGGGCGCGCCCCCGCTGGTTCCCCCTGTGCCTGCTGCT
CCTGAGCGTCGGAGTCGGCATCTACCTGCTGCCCAACCGCTGA

Figure 6, *Translation of HCV J4L6 genome (wild-type sequence)*

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1  MSTNPKPQRK  TKRNTNRRPQ  DVKFPGGGQI  VGGVYLLPRR  GPRLGVRATR  KASERSQPRG
61  RRQPIPKARR  PEGRAWAQPG  YPWPLYGNEG  LGWAGWLLSP  RGSRPSWGPT  DPRRRSRNLG
121 KVIDTLTCGF  ADLMGYIPLV  GAPLGGAARA  LAHGVVRVLED  GVNyatGNLP  GCSFSIFLLA
181 LLSCLTIPAS  AYEVRNVSGI  YHVTNDCSNS  SIVYEAADVI  MHTPGCVPCV  QEGNSSRCWV
241 ALTPTLAARN  ASVPTTTIRR  HVDLLVGTA  FCSAMYVGD  LCGSIFLVSQ  LFTFSPRRHET
301 VQDCNCSIYP  GHVSGHRMAW  DMMMNWSPTT  ALVVSQLLRI  PQAVVDMVAG  AHWGVLAGLA
361 YYSVMGNWAK  VLIVALLFAG  VDGETHTTGR  VAGHTTSGFT  SLFSSGASQK  IQLVNTNGSW
421 HINRTALNCN  DSLQTGFFAA  LFYAHKFNSS  GCPERMASCR  PIDWFAQGWG  PITyTKPNSS
481 DQRPYCWHYA  PRPCGVVPAS  QVCGPVYCF  TSPSPVVGT  TD RSGVPTYSW  GENETDVMLLN
541 NTRPPQGNWF  GCTWMNSTGF  TKTCGGPPCN  IGGVGNRTLI  CPTDCFRKHP  EATyTKCGSG
601 PWLTPRCLVD  YPYRLWHYPC  TLNFSIFKVR  MYVGGVEHRL  NAACNWTRGE  RCNLED RDRS
661 ELSPLLLSTT  EWQILPCAFT  TLPALSTGLI  HLHQNI DVQ  YLYGVGSAFV  SFAIKWEYIL
721 LLFLLLLADAR  VCACLWMLL  IAQAEAALEN  LVVLNAASVA  GAHGILSFLV  FFCAAWYIKG
781 RLAPGAAYAF  YGVWPLLLLL  LALPPRAYAL  DREMAASCGG  AVLVLGLVFLT  LSPYYKVFLT
841 RLIWWLQYFI  TRAEAHMQVW  VPPLNVRGGR  DAIILLTCAV  HPELIFDITK  LLLAILGPLM
901 VLQAGITRVP  YFVRAQGLIR  ACMLVRKVAG  GHYVQMVFMK  LGALTGTyVY  NHLTPLRDWA
961 HAGLRDLAVA  VEPVVFSAME  TKVITWGADT  AACGDIILGL  PVSARRGKEI  FLGPADSLEG
1021 QGWRL LAPIT  AYSQQTRGVL  GCIITSLTGR  DKNQVEGEVQ  VVSTATQSFL  ATCINGVCWT
1081 VYHGAGSKTL  AGPKGPITQM  YTNVDLDLVG  WQAPPGARSM  TPCSCGSSDL  YLVTRHADVI
1141 PVRRRGDSRG  SLLSPRPVSY  LKGSSGGPLL  CPSGHVGVF  RAAVCTRGA  KAVDFIPVES
1201 METTMRSPVF  TDNSTPPAVP  QTFQVAHLHA  PTGSGKSTKV  PAAYAAQGYK  VLVLNPSVAA
1261 TLGFGAYMSK  AHGIDPNIRT  GVRTITTGGS  ITYSTYGKFL  ADGGCSGGAY  DIIICDECHS
1321 TDSTTILGIG  TVLDQAETAG  ARLVVLATAT  PPGSVTVPHP  NIEEIGLSNN  GEIPFYGKAI
1381 PIEAIKGRH  LIFCHSKKKC  DELAAKL TGL  GLNAVAYYRG  LDVSVIPPIG  DVVVVATDAL
1441 MTGFTGDFDS  VIDCNTCVTQ  TVDFS LDPTF  TIETTTVPQD  AVSRSQRRGR  TGRGRSGIYR
1501 FVTPGERPSG  MFDSSVLCEC  YDAGCAWYEL  TPAETSVRLR  AYLNTPGLPV  CQDHLEFWES
1561 VFTGLTHIDA  HFLSQTKQAG  DNFPYLVAYQ  ATVCARAQAP  PPSWDQMWKC  LIRLKPTLHG
1621 PTPLLYRLGA  VQNEVILTHP  ITKYIMACMS  ADLEVVTSTW  VLVGGVLAAL  AAYCLTTGSV
1681 VIVGRIILSG  KPAVVPDREV  LYQEFDEMEE  CASQLPYIEQ  GMQLAEQFKQ  KALGLLQTAT
1741 KQAEAAAPVV  ESKWRALET  F WAKHMWNFIS  GIQYLAGLST  LPGNPAIASL  MAFTASITSP
1801 LTTQNTLLFN  ILGGWVAAQL  APPSAASAFV  GAGIAGAAVG  SIGLGKVLVD  ILAGYGAGVA
1861 GALVAFK VMS  GEVPSTEDLV  NLLPAILSPG  ALVVGVVCAA  ILRRHVGPGE  GAVQWMNRLI
1921 AFASRGNHVS  PTHYVPESDA  AARVTQILSS  LTITQLLKRL  HQWINEDCST  PCSGSWLRDV
1981 WDWICTVLTD  FKTWLQSKLL  PRLPGVPFLS  CQRGYKGVWR  GDGIMQTTCP  CGAQIAGHVK
2041 NGSMRIVGPR  TCSNTWHGTF  PINAYTTGPC  TPSPAPNYSR  ALWRVAAEEY  VEVTRVGDFH
2101 YVTGMTTDNV  KCPCQVPAP  E FFTEVDGVRL  HRYAPACKPL  LREDVTFQVG  LNQYLVGSQ

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2161 PCEPEPDVTV LTSMLTDPSH ITAETAKRRL ARGSPPSLAS SSASQLSAPS LKATCTTHHD
2221 SPDADLIEAN LLWRQEMGGN ITRVESENKV VILDSFEPLH AEGDEREISV AAAILRKSrk
2281 FPSALPIWAR PDYNPPLLES WKDPDYVPPV VHGCPLPPTK APPIPPPRRK RTVVLTESNV
2341 SSALAEELATK TFGSSGSSAV DSGTATALPD LASDDGDKGS DVESSYSSMP LECEPGDPDL
2401 SDGSWSTVSE EASEDVVCCS MSYTWGALI TPCAAEESKL PINPLSNSLL RHHNMVYATT
2461 SRSASLRQKK VTFDRLQVLD DHYRDVLKEM KAKASTVKAK LLSIEEACKL TPPHSAKSKF
2521 GYGAKDVRNL SSRVNHRS VWEDLLEDTE TPIDTTIMAK SEVFCVQPEK GGRKPARLIV
2581 FPDLGVRVCE KMALYDVVST LPQAVMGSSY GFQYSPKQRV EFLVNTWWSK KCPMGFSYDT
2641 RCFDSTVTES DIRVEESIQ CCDLAPEARQ AIRSLTERLY IGGPLTNSKG QNCGYRRCRA
2701 SGVLTSTCGN TLTCYLKATA ACRAAKLQDC TMLVNGDDLIV VICESAGTQE DAAALRAFTE
2761 AMTRYSAAPP DPPOPEYDLE LITSCSSNVS VAHDASGKRV YYLTRDPTTP LARAAWETAR
2821 HTPINSWLGN IIMYAPTLWA RMILMTHFFS ILLAQEQLEK ALDCQIYGAC YSIEPLDLPQ
2881 IIERLHGLSA FTLHSYSPGE INRVASCLRK LGVPPLRTWR HRARSVRACL LSQGGRAATC
2941 GRYLFNWAVR TKLKLTPIPA ASQLDLGWF VAGYSGGDIY HSLSRARPRW FPLCLLLLSV
3001 GVGIIYLLPNR

Figure 7, p7313-ie

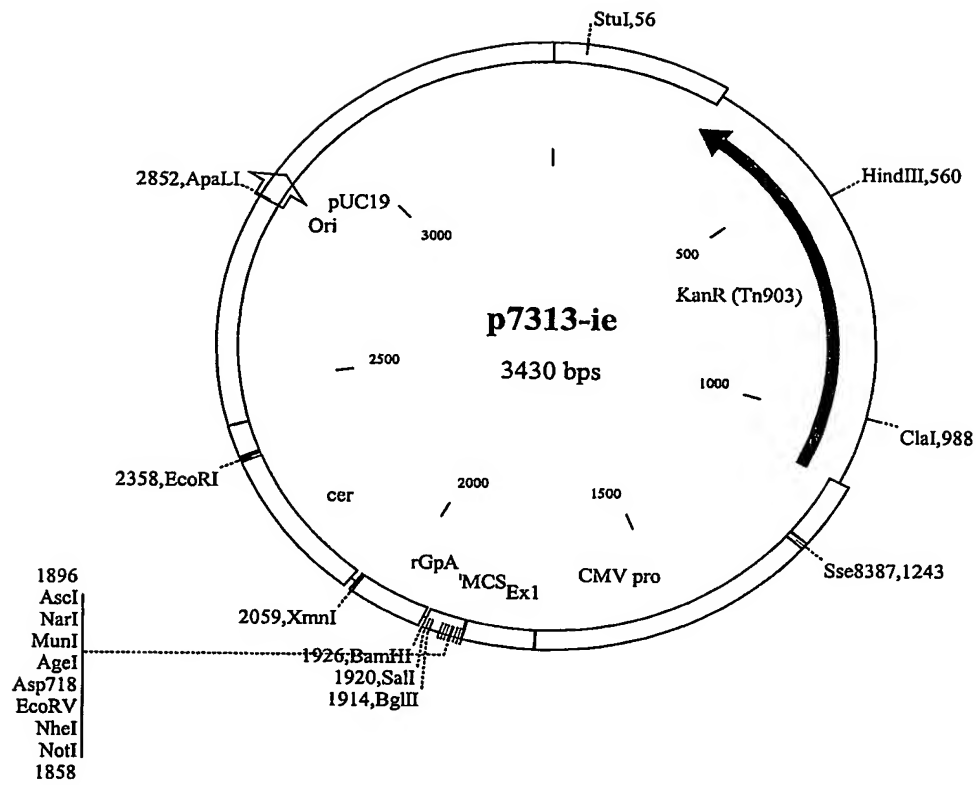


Figure 8, Immune responses to Core

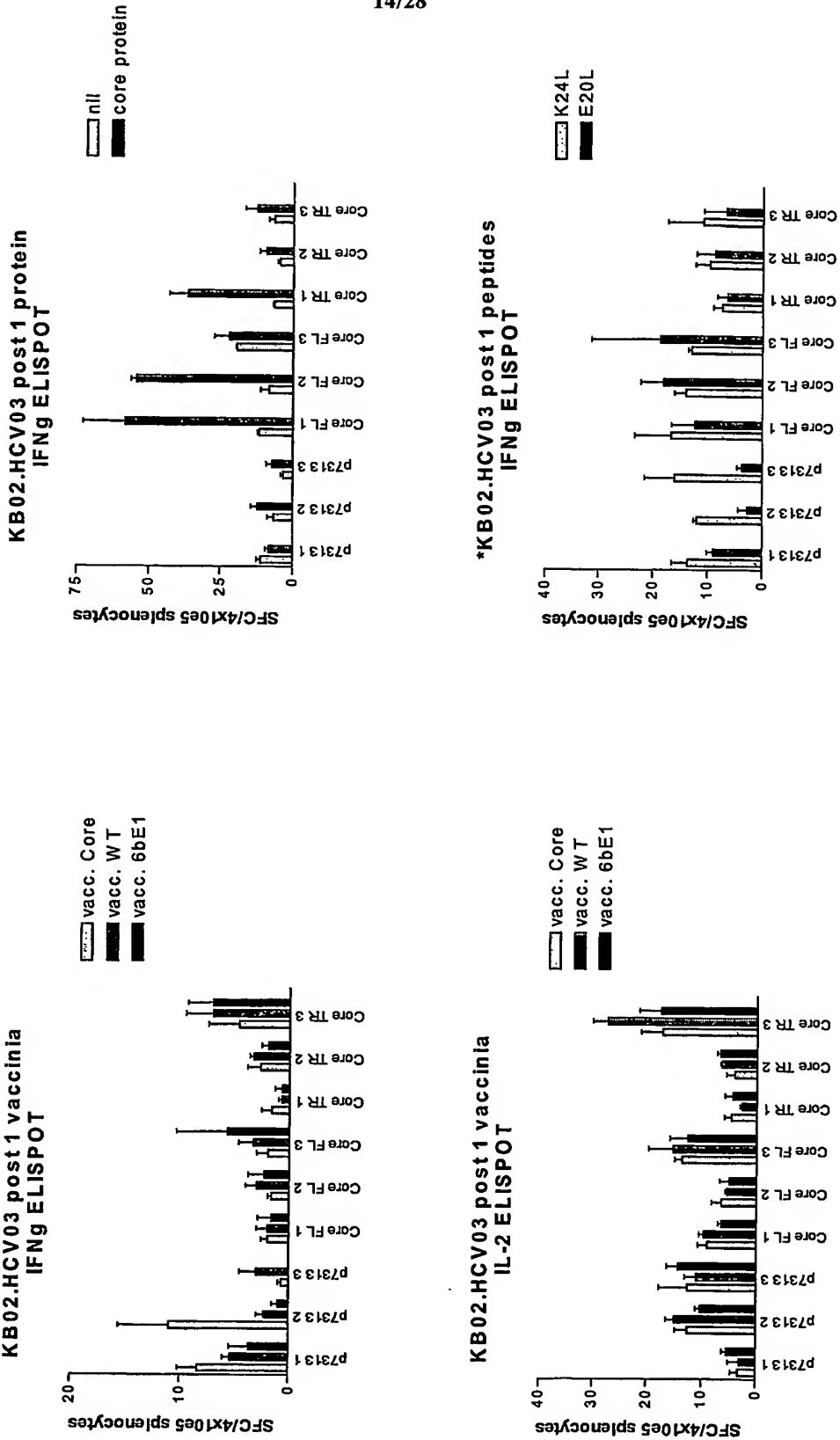
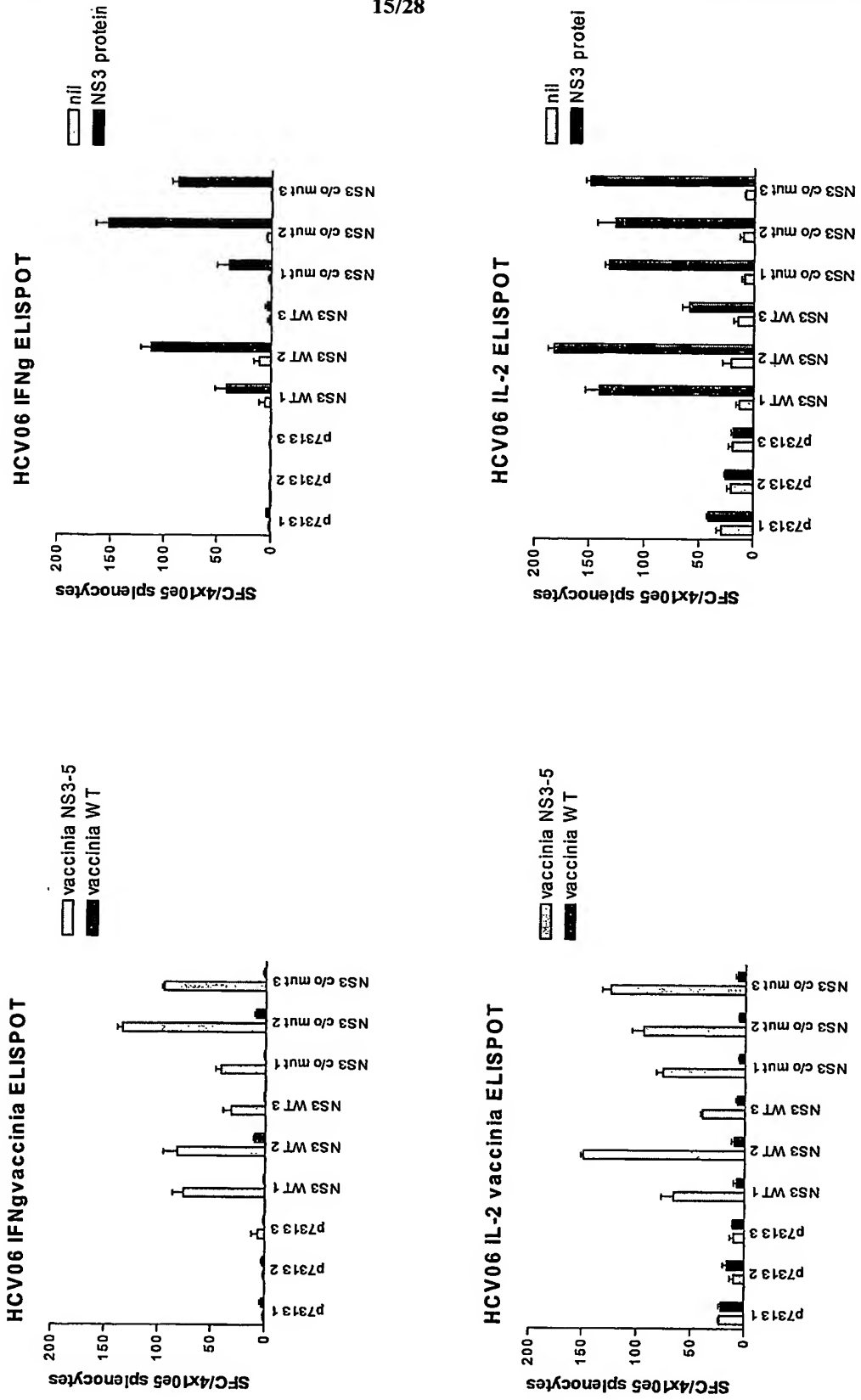


Figure 9, NS3 immunogenicity



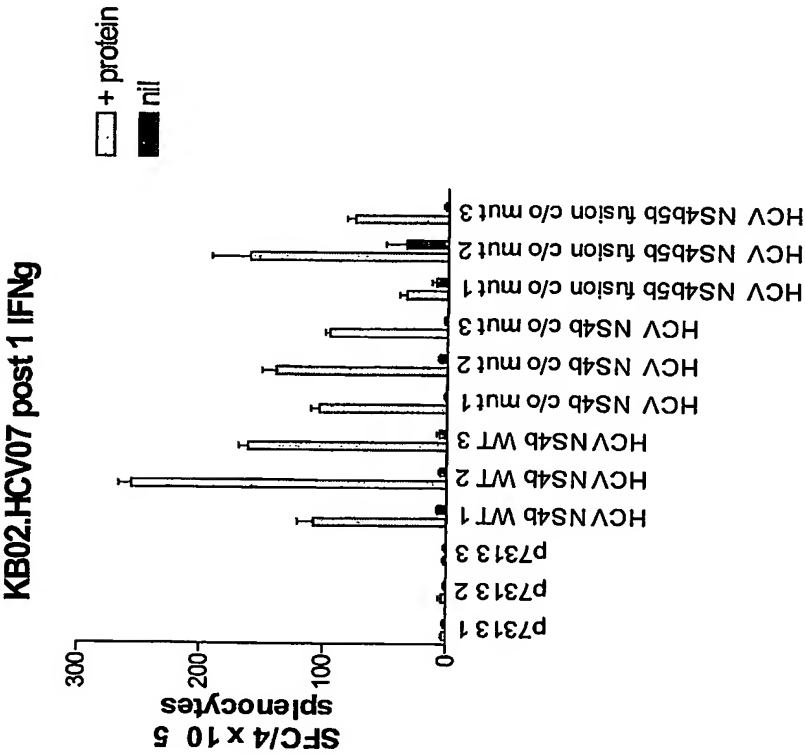
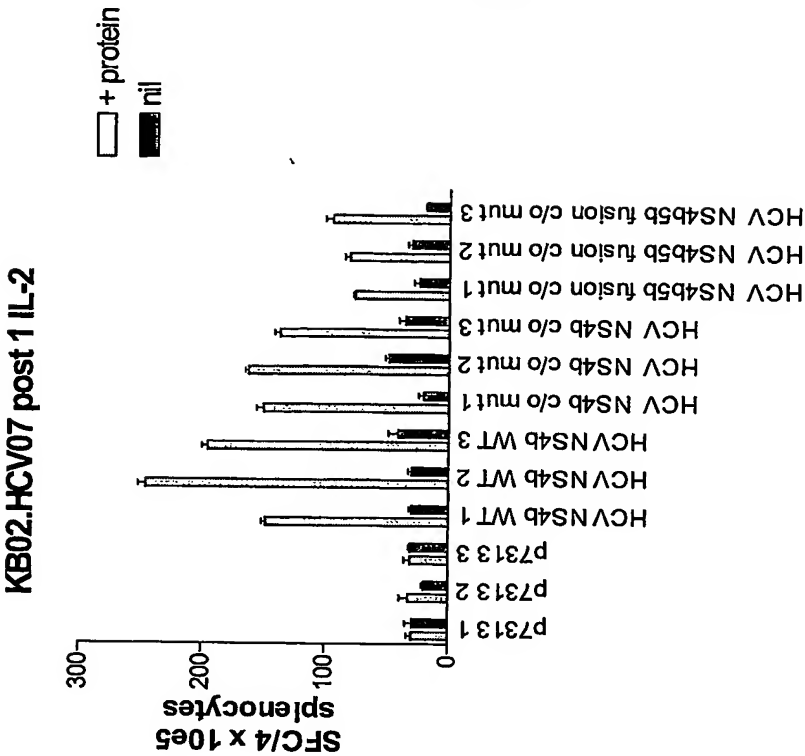


Figure 10, Immune responses to NS4B

Figure 11, NS5B immune responses

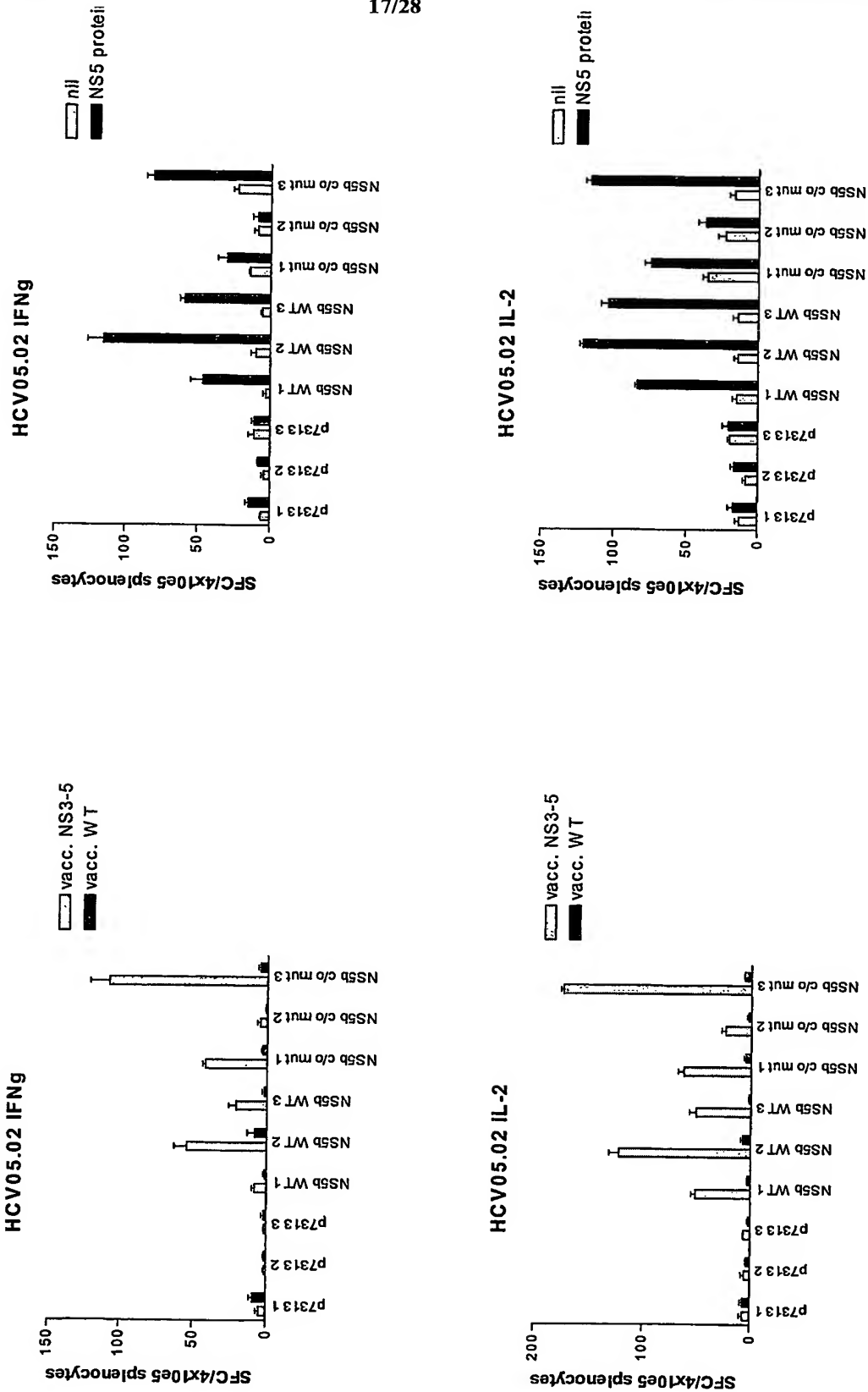


FIG. 12

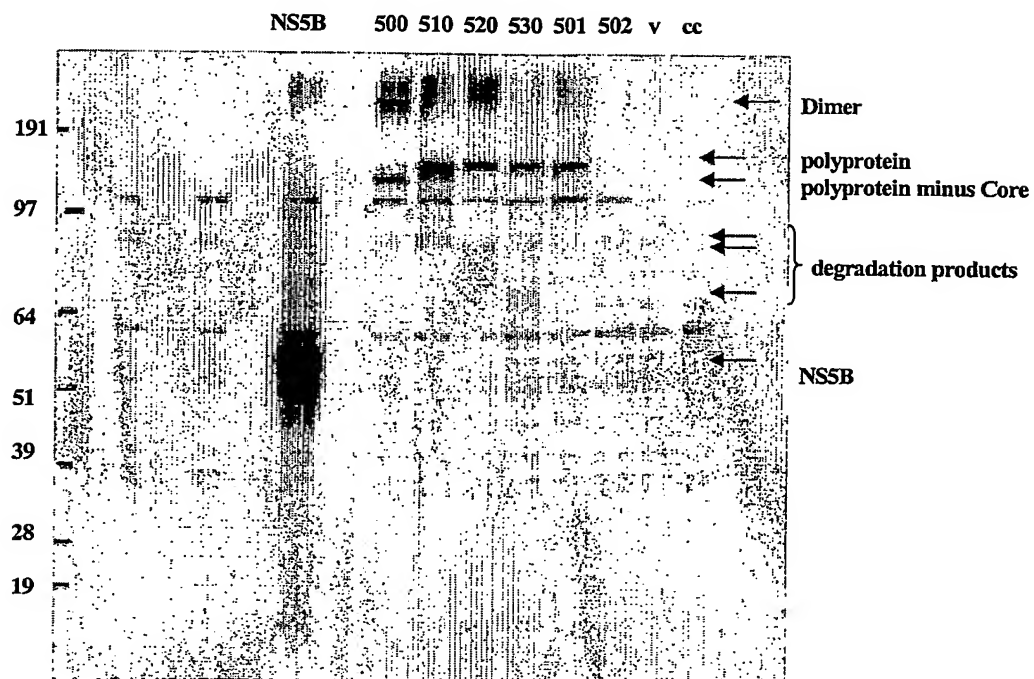
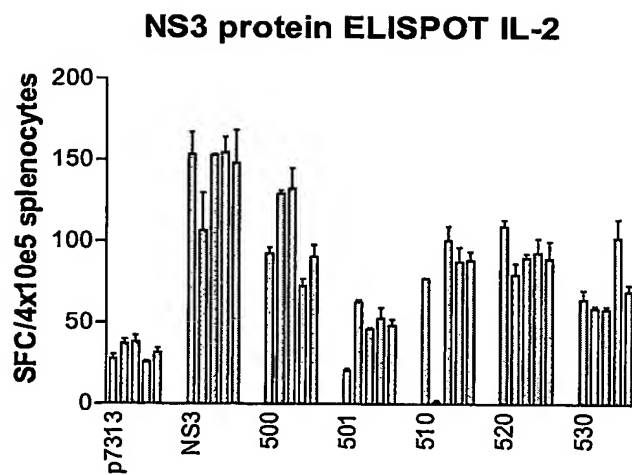
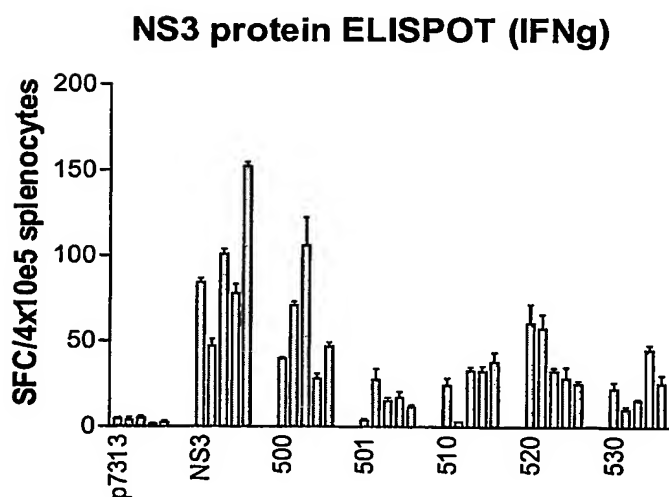
Anti-HCV NS5B

FIG. 13, A



B.



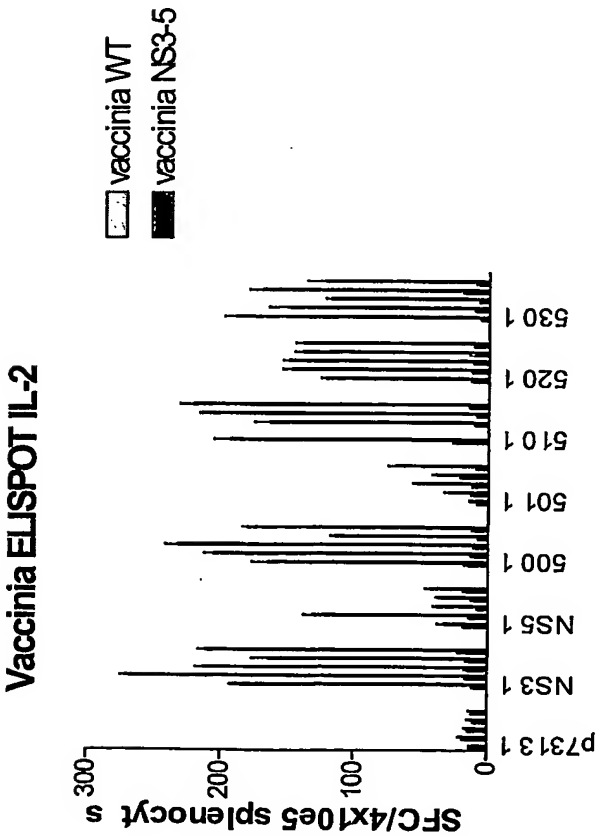
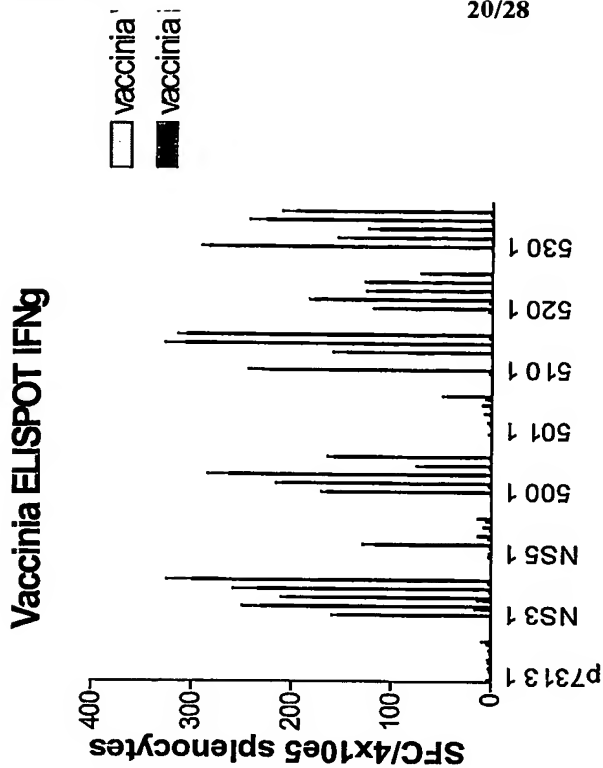


FIG 14.

FIG. 15,

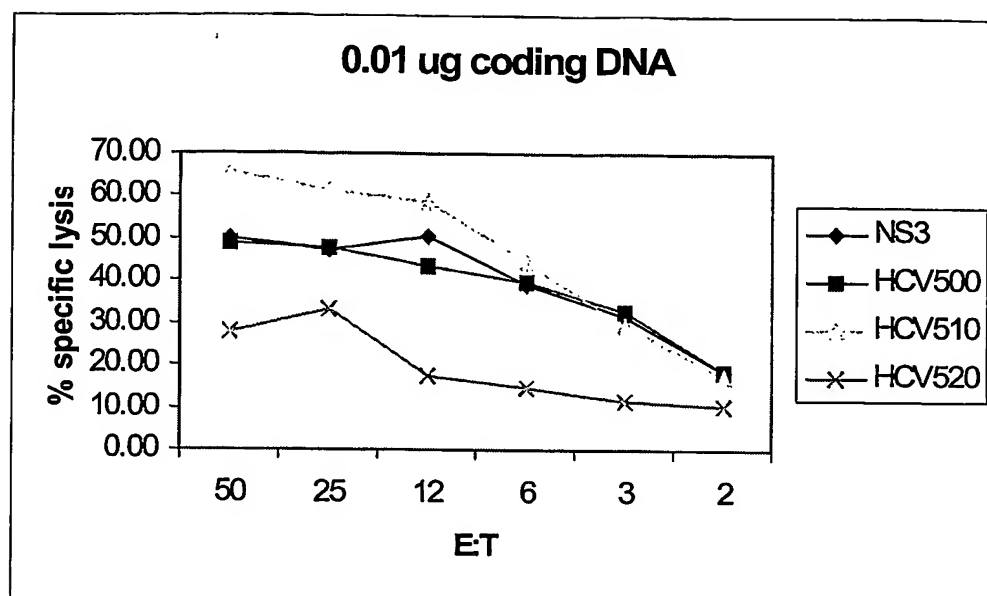


FIG. 16,

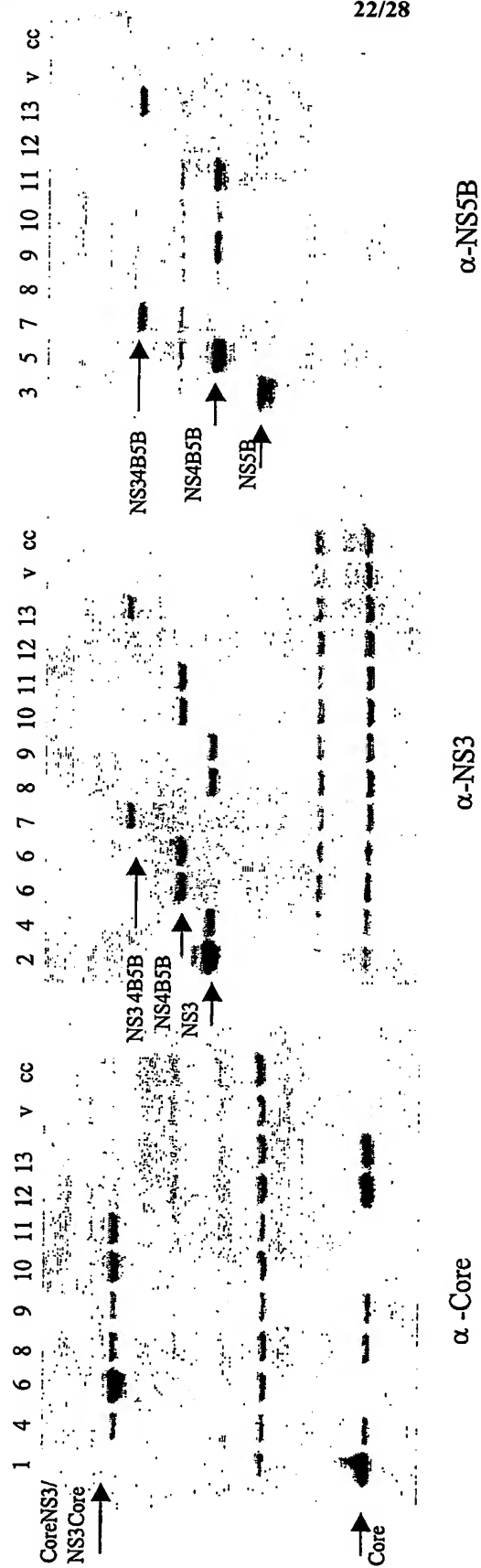


FIG. 17, C mparison of NS3 T cell response induced by dual promoter constructs.

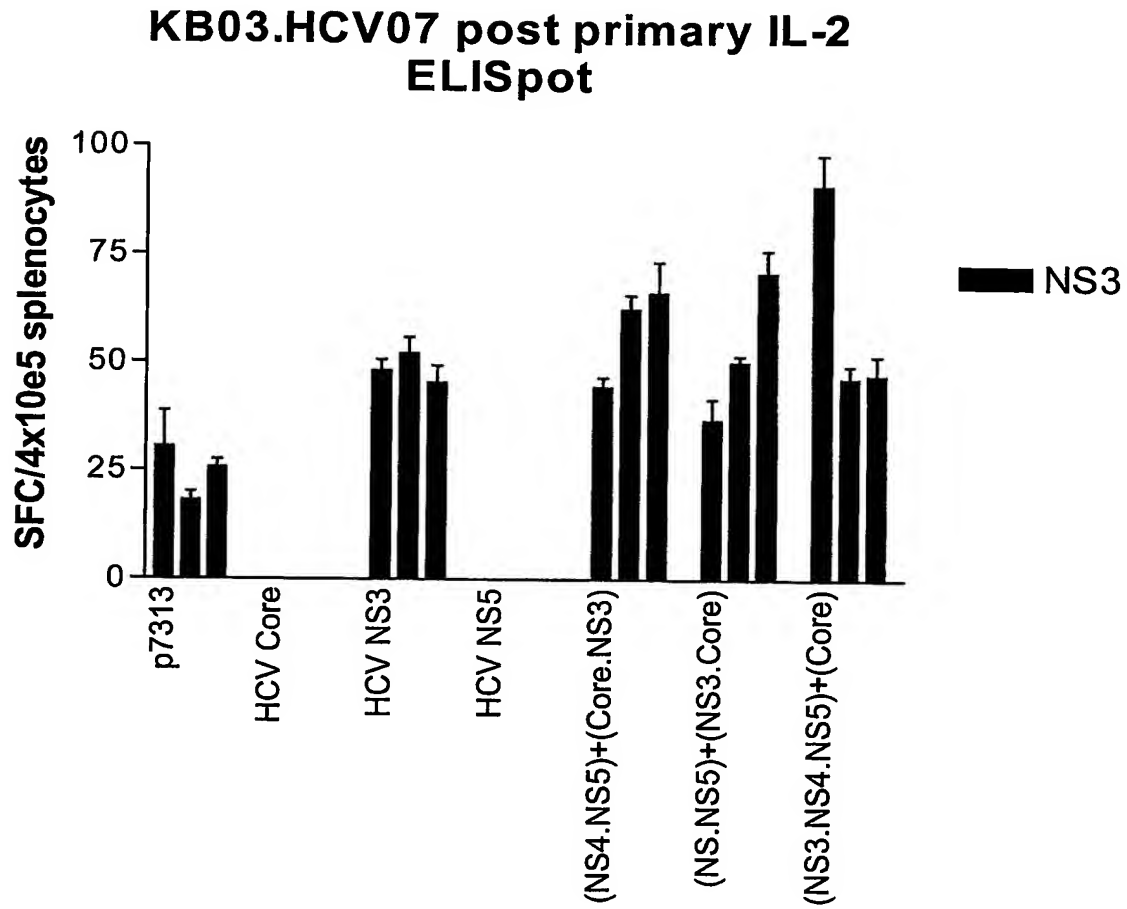


FIG. 18,

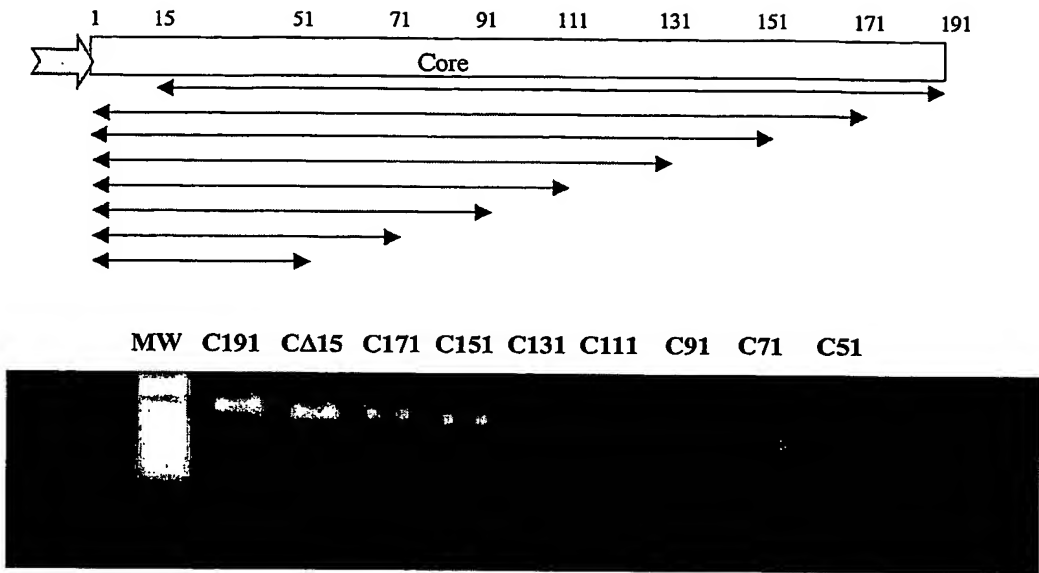


FIG. 19.

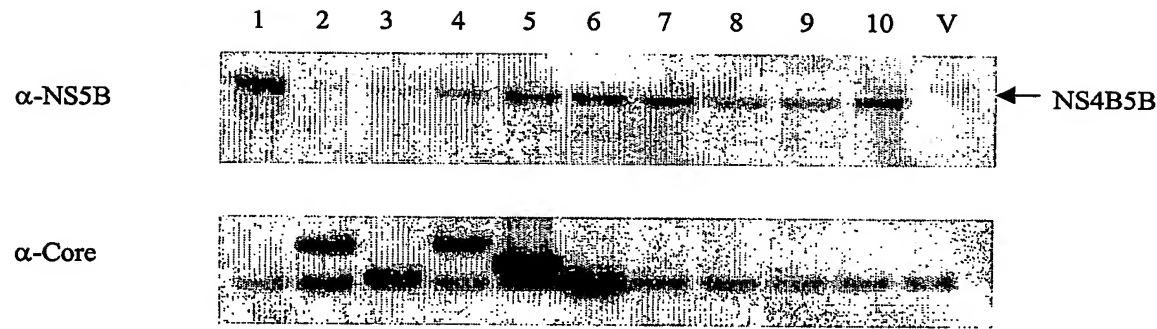


FIG. 20,

Effect of Core and Core₁₅₁ upon expression of NS3, NS5B, NS4B5B, and NS34B5B after co-transfection in 293T cells

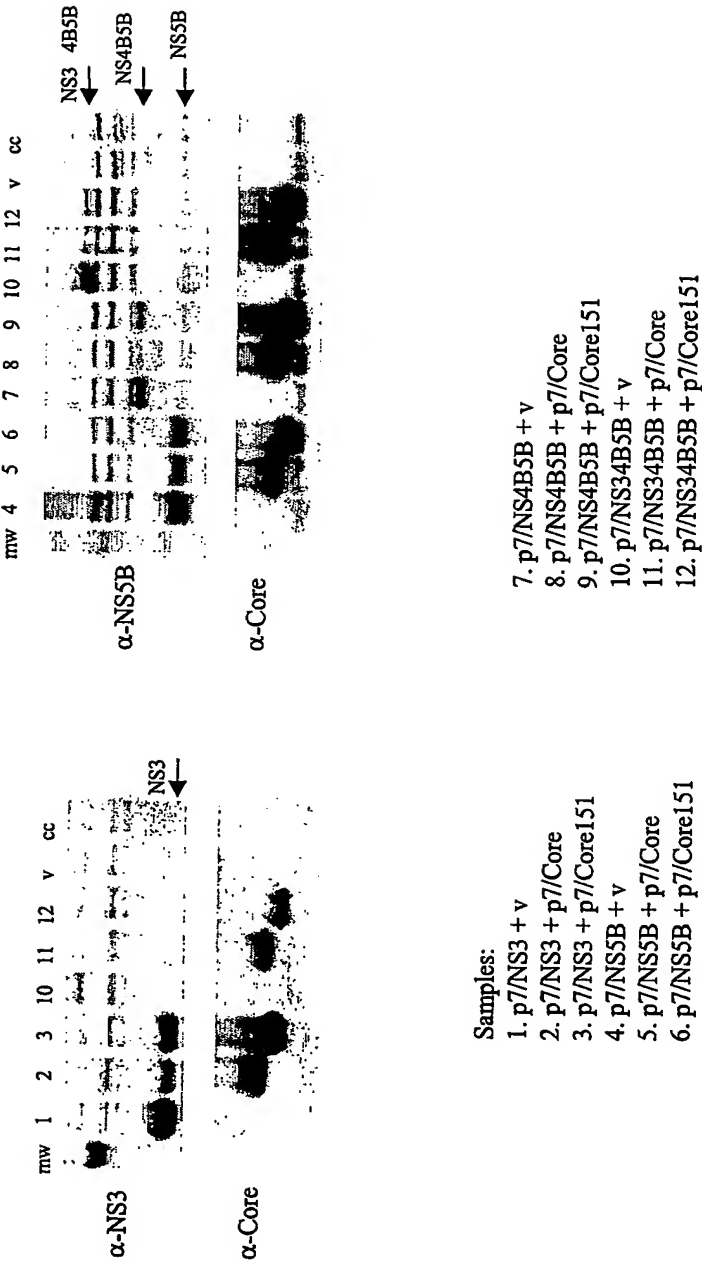
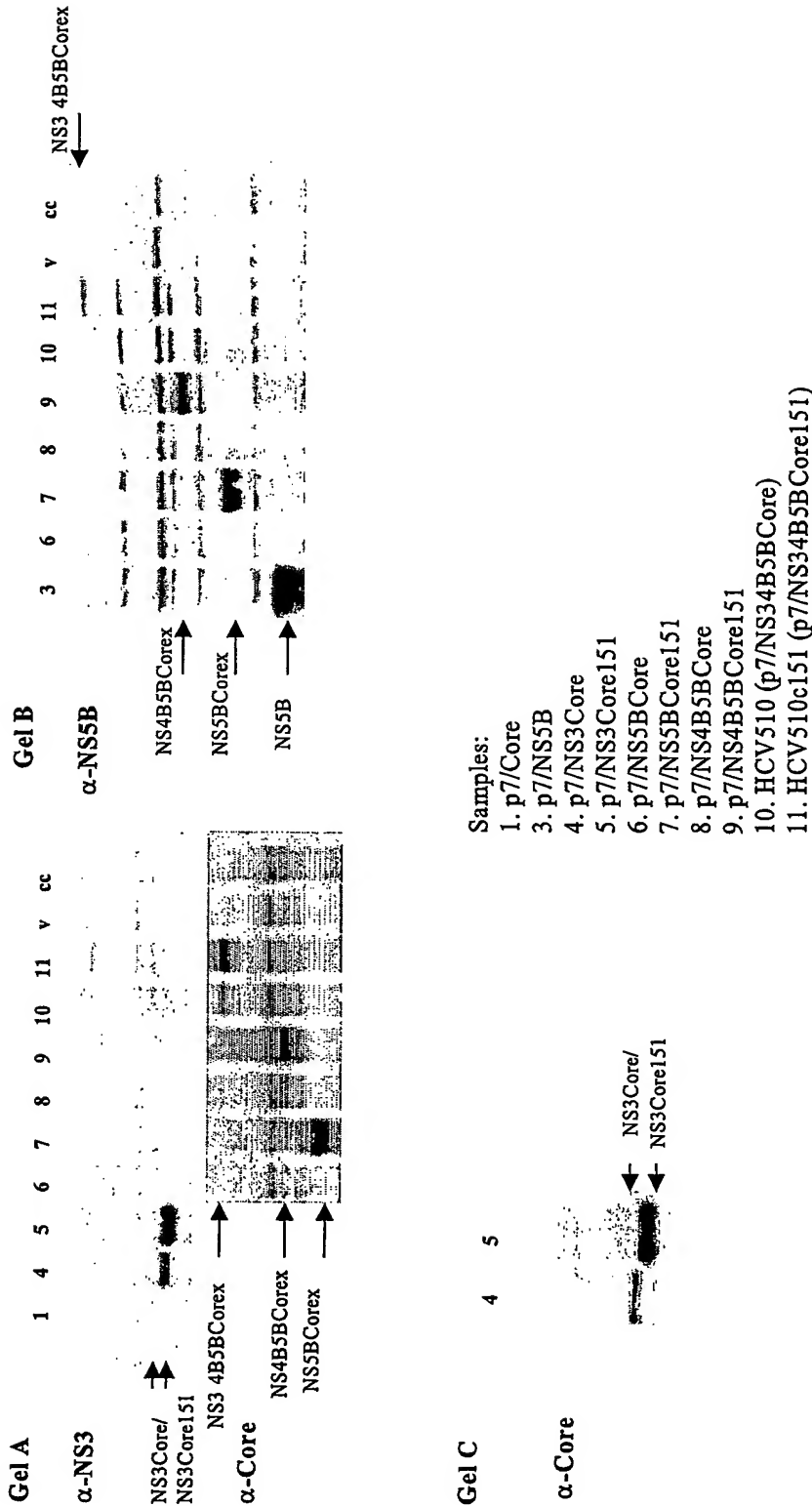


FIG. 21,

Effect on expression of fusion proteins, after substitution of Core₉₁ for Core₁₉₁, in transient transfection in 293T cells



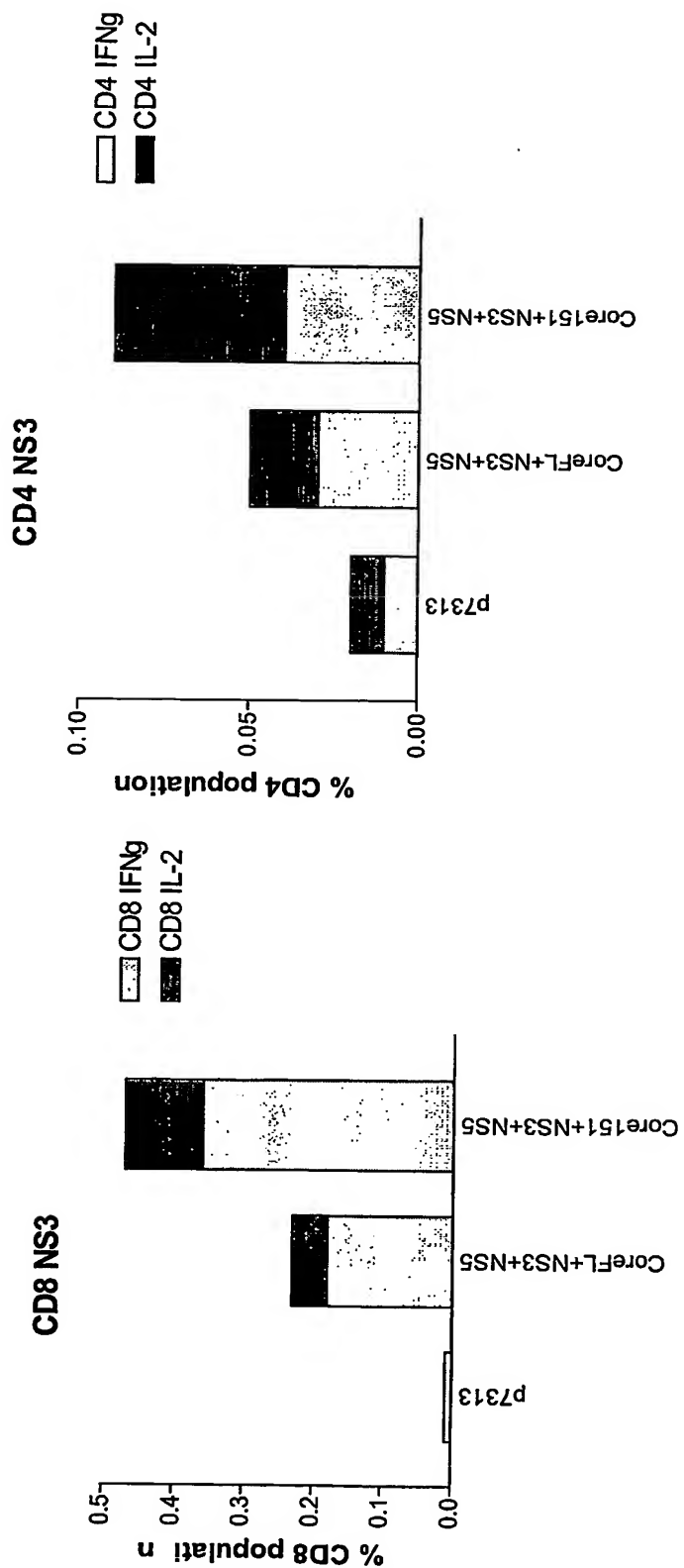


FIG. 22,

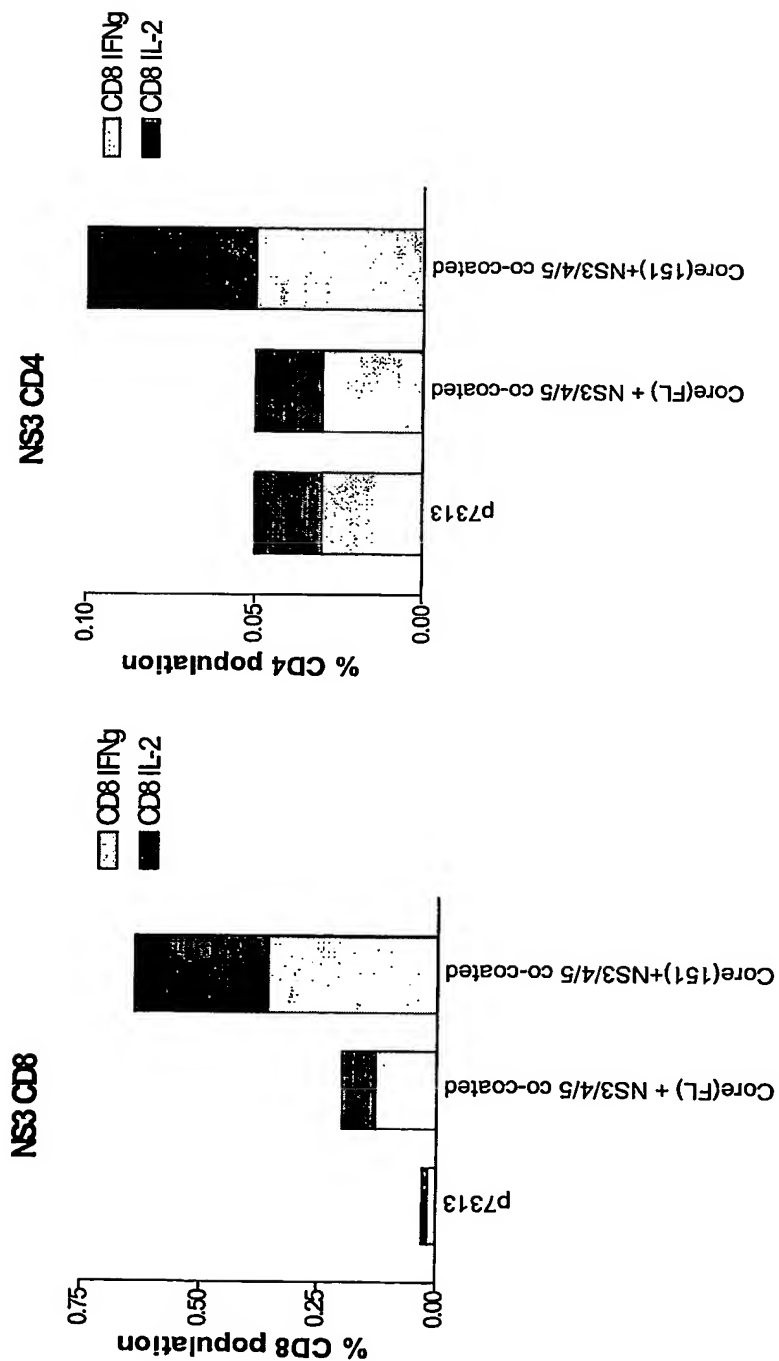


FIG. 23,